

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-91; Short Answer: The word modem is derived from what two words?

ANSWER: MODULATE - DEMODULATE or MODULATOR - DEMODULATOR

COMP-91; Short Answer: What is the binary representation of 15.5 base 10?

ANSWER: 1111.1

COMP-91; Short Answer: Give the FORTRAN field description for the following INTEGER:  
6789

ANSWER: I4 (read: eye - 4)

COMP-91; Short Answer: What is the octal representation of 19 decimal?

ANSWER: 23 BASE 8 or 23

COMP-91; Short Answer: What is the binary representation of 65 octal?

ANSWER: 110101

COMP-91; Short Answer: What is the octal representation of A5 hexadecimal?

ANSWER: 245

COMP-91; Short Answer: What is the octal sum of 064321 octal and 016477 octal?

ANSWER: 103020

COMP-91; Multiple Choice: Which of the following reads a source program one statement at a time and causes the execution of that statement?

- w) assembler
- x) compiler
- y) lister
- z) interpreter

ANSWER: Z -- INTERPRETER

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## COMPUTER SCIENCE

COMP-91; Short Answer: Suppose that a byte is 8 bits. If one character is represented by one byte of storage, then how many different characters could be represented using one byte per character?

ANSWER: 28 or 256

COMP-91; Short Answer: If  $b=5$ ,  $c=4$ ,  $d=2$ , and  $e=3$  and all are integer variables, what integer value is obtained for the following expression when programming in BASIC?

$b + c*d**e$  (read: B plus C star D star star E)

ANSWER: 37

COMP-91; Short Answer: Subtract in base 2:  $1011 - 110$

ANSWER: 101

COMP-91; Short Answer: Let  $b(1) = 1$ ,  $b(2) = 2$  and  $b(3) = 3$ . What polynomial does the following FORTRAN routine evaluate?

$F = b(1)$  (read: F equals B of one)  
DO I = 2,3  
 $F = F * X + b(I)$  (read: F equals F star X plus B of I) END DO

ANSWER:  $F = x^2 + 2x + 3$

COMP-91; Short Answer: Place the following computer languages in order from the lowest level (i.e., most primitive and most hardware dependent) to the highest level (i.e., least primitive and least hardware dependent):  
microcode, BASIC, assembler-language, machine language.

ANSWER: MICROCODE, MACHINE-LANGUAGE, ASSEMBLER-LANGUAGE, BASIC

COMP-91; Short Answer: Place the following programming languages in chronological order with regard to their first introduction to the computing public: BASIC, ALGOL, Pascal, FORTRAN

ANSWER: FORTRAN, ALGOL, BASIC, PASCAL

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COMP-91; Short Answer: What is the largest positive decimal value which can be represented by six binary digits (bits)?

ANSWER: 63.

COMP-91; Multiple Choice: Which of the following terms refers to the use of a computer to create, store, revise, and produce text:

- w) teleprocessing
- x) word-processing
- y) time-sharing
- z) voice-synthesis

ANSWER: X -- WORD-PROCESSING

COMP-91; Multiple Choice: A computer program can be written to play tic-tac-toe in a manner such that the program never loses the same game situation more than one time. In which of the following areas of computer science would this program be of interest:

- w) operating systems
- x) computability
- y) artificial intelligence
- z) optimization

ANSWER: Y -- ARTIFICIAL INTELLIGENCE

COMP-91; Multiple Choice: Which of the following computers would implement the method of processing in which one operation is completed before the next operation is initiated?

- w) analog
- x) digital
- y) asynchronous
- z) synchronous

ANSWER: Y -- ASYNCHRONOUS

COMP-91; Multiple Choice: Which of the following computers represents variables by physical analogies?

- w) analog
- x) digital
- y) asynchronous
- z) synchronous

ANSWER: W -- ANALOG

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COMP-91; Multiple Choice: What is the process of filling internal storage of a computer with information from auxiliary or external storage?

- w) compile
- x) link
- y) load
- z) assemble

ANSWER: Y -- LOAD

COMP-91; Multiple Choice: The algebra concerned with two-state variables was named for which of the following persons?

- w) George Boole
- x) Blaise Pascal
- y) Issac Newton
- z) Albert Einstein

ANSWER: W -- GEORGE BOOLE

COMP-91; Short Answer: Place the following in order from the smallest unit of memory to the largest: block, byte, bit, word

ANSWER: BIT, BYTE, WORD, BLOCK

COMP-91; Multiple Choice: Which of the following is characteristic of the first generation of digital computers?

- w) vacuum tubes
- x) transistors
- y) semi-conductors
- z) chips

ANSWER: W -- VACUUM TUBES

COMP-91; Short Answer: What are the 4 major divisions in a COBOL program?

ANSWER: IDENTIFICATION, ENVIRONMENT, DATA, PROCEDURE

COMP-91; Short Answer: What are graphs of mathematical sets called?

ANSWER: VENN DIAGRAMS

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COMP-91; Multiple Choice: Of the following men, who co-authored the first book on programming?

- w) Maurice V. Wilkes
- x) John von Neumann
- y) Thomas J. Watson
- z) J. Presper Eckert

ANSWER: W -- MAURICE V. WILKES

COMP-91; Short Answer: The CPU consists of what two units:

ANSWER: ARITHMETIC/LOGIC UNIT and CONTROL UNIT

COMP-91; Short Answer: What is the material from which most micro-electronic chips are made?

ANSWER: SILICON

COMP-91; Short Answer: How many nibbles are in a byte?

ANSWER: TWO

COMP-91; Short Answer: What is the 10's complement of 45?

ANSWER: 55

COMP-91; Multiple Choice: A COBOL source program has 4 divisions. Which of the following divisions contains the equipment configuration?

- w) Identification
- x) Environment
- y) Data
- z) Procedure

ANSWER: X -- ENVIRONMENT

COMP-91; Short Answer: What is the radix of an octal number?

ANSWER: 8

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COMP-91; Multiple Choice: What FORTRAN symbol represents a BLANK field?

- w) X
- x) I
- y) E
- z) F

ANSWER: W -- X

COMP-91; Short Answer: Give the FORTRAN field description for the following: -123.45

ANSWER: F7.2

COMP-91; Short Answer: In a FORTRAN program, I is an integer. What is the value of I after the following FORTRAN statements are executed?

I = 1                    (read: I equals 1)  
I = 2.5 \* I            (read: I equals 2.5 star I)  
I = I + 1              (read: I equals I plus 1)

ANSWER: 3

COMP-91; Short Answer: What is the numerical value of I defined by the following FORTRAN statement:

I = (1\*2\*3)\*\*3    (read: I equals - open parenthesis - 1 star 2 star 3 - close parenthesis - star star 3)

ANSWER: I = 216

COMP-91; Multiple Choice: Which of the following is NOT characteristic of an operating system.  
An operating system:

- w) is a resource manager
- x) is a library of utility programs
- y) defines the "user interface"
- z) shares the hardware among users

ANSWER: X -- IS A LIBRARY OF UTILITY PROGRAMS

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COMP-91; Multiple Choice: The offsetting of the tremendous variation in I/O speeds for various devices by the use of a device of intermediate speed is known as:

- w) unbundling
- x) channeling
- y) spooling
- z) loading

ANSWER: Y -- SPOOLING

COMP-91; Multiple Choice: The name given to a special-purpose computer devoted to handling I/O independently of the main processor of the computer system is:

- w) loader
- x) channel
- y) track
- z) bundler

ANSWER: X -- CHANNEL

COMP-91; Multiple Choice: Which of the following techniques is a hardware technique used in high performance computer systems to exploit certain types of parallelism in instruction processing?

- w) pipelining
- x) networking
- y) multiprocessing
- z) multitasking

ANSWER: W -- PIPELINING

COMP-91; Multiple Choice: In the CPU, the "instruction register" holds the instruction which:

- w) was previously executed
- x) is CURRENTLY being executed
- y) is the next instruction to be executed
- z) contains no instruction information.

ANSWER: X -- IS CURRENTLY BEING EXECUTED

COMP-91; Short Answer: The term COBOL is an acronym for what?

ANSWER: COMMON BUSINESS ORIENTED LANGUAGE

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## COMPUTER SCIENCE

COMP-91; Short Answer: Second generation computers replaced vacuum tubes with what electronic device?

ANSWER: TRANSISTOR

COMP-91; Short Answer: The following equation is found in a program written in BASIC:

$y = 2 - A * B$  (read: y equals 2 minus A star X)

What is the first mathematical manipulation carried out by the computer?

ANSWER: MULTIPLICATION OF A AND B or MULTIPLICATION

COMP-91; Short Answer: The following equation is found in a program written in BASIC:

$y = 6 - A * B / C$  (read: y equals 6 minus A star B slash Y)

What is the SECOND mathematical operation that will be carried out by the computer?

ANSWER: DIVISION or (DIVISION BY Y)

COMP-91; Short Answer: The following equation is found in a program written in BASIC:

$y = A * (d - 2)$  (read: y equals A star, open parenthesis, D minus 2, close parenthesis).

What mathematical operation will the computer perform first?

ANSWER: SUBTRACTION or (D - 2)

COMP-91; Short Answer: What is the ones complement of the following 4-bit string: 1101

ANSWER: 0010

COMP-91; Short Answer: Determine the two's complement of the following 4 bit string: 0010

ANSWER: 1110



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COMP-91; Short Answer: Write the FORTRAN expression:

$a + b * c$  (read: a plus b star y)

in Reverse Polish.

ANSWER:  $bc * a +$  (read: bc star a plus)

COMP-91; Short Answer: What does the acronym LISP stand for?

ANSWER: LIST PROCESSING

COMP-91; Short Answer: What is the only data structure in the programming language LISP?

ANSWER: A LIST

COMP-91; Short Answer: The floppy diskette is used as an external storage device by most microcomputers. In a single-sided, double-density 5-and 1/4 inch diskette, storage locations consist of 40 narrow concentric ring-shaped areas. What is the standard term for the 40 ring-shaped areas?

ANSWER: TRACKS

COMP-91; Short Answer: Identify the oldest known mechanical computing aid and the country in which it was used as early as the 6th century B.C.

ANSWER: ABACUS and CHINA

COMP-91; Short Answer: Give the value of the largest integer that can be written as an 8-bit binary number.

ANSWER: 255 or 2 TO THE 8th POWER, MINUS 1

COMP-91; Short Answer: In BASIC, one might commonly begin a loop with the statement:

FOR I = 1 TO 5

What statement would be used to end this loop?

ANSWER: NEXT I

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COMP-91; Short Answer: The data-transfer rate through a modem is often described in terms of this four-letter name. Give me this name.

ANSWER: BAUD

COMP-91; Multiple Choice: The most common type of computer disk records its information by what type of process?

- w) electrical
- x) optical
- y) magnetic
- z) mechanical

ANSWER: Y -- MAGNETIC

COMP-91; Multiple Choice: You are transmitting information at 300 baud. This means you are sending approximately:

- w) 300 bytes per second
- x) 300 kilobytes per minute
- y) 300 bits per second
- z) 300 bits per minute

(pron: the au in baud is pronounced like the a in raw, bytes is pronounced like bites)

ANSWER: Y -- 300 BITS PER SECOND

COMP-91; Multiple Choice: Which of the following is not considered hardware?

- w) floppy disk
- x) RAM (pron: as a word "ram")
- y) linker
- z) modem

ANSWER: Y -- LINKER

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COMP-91; Multiple Choice: MS-DOS, UNIX and OS/2 are:  
(pron: "M S dos" (rhymes with moss), "U nix", "O S two")

- w) types of computers
- x) graphics programs
- y) programming languages
- z) operating systems

ANSWER: Z -- OPERATING SYSTEMS

COMP-91; Short Answer: What are lines of computer code that are transmitted to your computer without your knowledge and are capable of such things as slowing down your operations, filling up memory space and distorting your programs called?

ANSWER: VIRUSES (OR VIRUS) or WORMS or TROJAN HORSE

COMP-91; Short Answer: You are programming in BASIC on your PC. What statement should be the last line of your program?

ANSWER: END

COMP-91; Short Answer: You are looking over a program written in BASIC and encounter the following statement:

INT(RND\*10)-5 (read: I-N-T open parenthesis R-N-D star 10 close parenthesis minus 5)

You know the system's random number generator produces values GREATER THAN 0 and LESS THAN 1. What range of values will the above statement produce?

ANSWER: -5 to +4

COMP-91; Short Answer: You are programming in BASIC on your PC. You would like to close all open files and force all file buffers in memory to write to disk. What command would you use?

ANSWER: RESET or CLOSE

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## COMPUTER SCIENCE

COMP-91; Short Answer: When programming in BASIC, what statement reinitializes the sequence of random numbers that are generated by the RND function?

ANSWER: RANDOMIZE or RANDOMIZE [SEED]

COMP-91; Short Answer: When programming in BASIC you encounter the following lines of code:

```
V = FIX(-5.5) (read: V equals F-I-X - open parenthesis - minus 5.5 - close parenthesis)
Print V
```

When you run the program, what value will the computer print for V?

ANSWER: -5

COMP-91; Short Answer: What 3-letter statement is used in a BASIC program to allocate storage space for an array?

ANSWER: DIM

COMP-91; Short Answer: A BASIC program executes the following statements:

```
A = 1
```

```
B = 2
```

```
If A > 1 then A = 10 (read: If A is greater than 1 then A equals 10)
```

```
If B > 1 then A = 100 (read: If B is greater than 1 then A equals 100)
```

```
A = A + 2 * B (read: A equals A plus 2 star X)
```

What is the final value of A?

ANSWER: 104

COMP-91; Short Answer: A BASIC program executes the following five statements:

```
J = 2
```

```
K = 5
```

```
For I = 1 to 4 (read: For I equals 1 to 4)
```

```
J = J + I
```

```
Next I
```

What is the final value of J?

ANSWER: 12

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COMP-91; Short Answer: A BASIC program executes the following statements:

S = 5

E = 10

SP = 2

For C = S to E step SP (read: For C equals S to E step S - P)

Print C

Next C

What numbers appear on the screen?

ANSWER: 5, 7, 9 (all three must be given)

COMP-91; Multiple Choice: A parity check can be used to check for:

w) programming logic errors

x) divisions by zero

y) undefined variables

z) internal computer errors

ANSWER: Z -- INTERNAL COMPUTER ERRORS

COMP-91; Short Answer: In an EVEN parity system, what is the value of the parity bit associated with an 8 bit character if the number of 1 bits is 4?

ANSWER: 0

COMP-91; Multiple Choice: The primary electronic elements used in the first computers were vacuum tubes. What were the primary electronic elements in the next generation of computers?

w) magnetic disks

x) integrated circuits

y) multiplexors

z) transistors

ANSWER: Z -- TRANSISTORS

COMP-91; Short Answer: What decimal number does the hexadecimal number 1E represent?

ANSWER: 30

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COMP-91; Short Answer: What is the binary representation of the hexadecimal number C?

ANSWER: 1100 (read: 1 1 0 0)

COMP-91; Multiple Choice: The inventor of the tabulating machine which read data from punched cards and was used in the 1890 census was

- w) Thomas Edison
- x) Herman Hollerith
- y) Blaise Pascal (pron: blez - pas - kal')
- z) John von Neumann

ANSWER: X -- HERMAN HOLLERITH

COMP-91; Multiple Choice: A cache (pron: cash) is:

- w) a low speed buffer memory
- x) a high speed buffer memory
- y) ROM
- z) a register

ANSWER: X -- A HIGH SPEED BUFFER MEMORY

COMP-91; Multiple Choice: RS-232C (pron: R S two thirty two Y) refers to a type of:

- w) personal computer
- x) physical interface between a computer and peripheral equipment
- y) printer
- z) monitor

ANSWER: X -- PHYSICAL INTERFACE BETWEEN A COMPUTER AND PERIPHERAL

COMP-91; Short Answer: You are programming in FORTRAN. What statement is used to invoke a subroutine?

ANSWER: CALL

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COMP-91; Short Answer: The following are a set of lines from a BASIC program.

A = 25

B = SGN(W) (read: B equals S G N - open parenthesis - A - close parenthesis)

What is the value of B?

ANSWER: 1 (SGN means sign, returns a +1 if A > 0)

COMP-91; Short Answer: 254 (base 10) in hexadecimal (base 16) is equal to what?

ANSWER: FE

COMP-91; Short Answer: The acronym RAM stands for:

ANSWER: RANDOM ACCESS MEMORY

COMP-91; Short Answer: A FORTRAN program executes the following lines of code:

X = -5

DO 80, I = 1,4,2

X = X + X \*\* I

80 CONTINUE

What is the final value of X?

ANSWER: -1010

COMP-91; Multiple Choice: When writing a FORTRAN program, variable names beginning with the letters I through N are implicitly:

w) real

x) complex

y) integer

z) double precision

ANSWER: Y -- INTEGER

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COMP-91; Multiple Choice: Consider the following line of FORTRAN code:

READ(5,2) (read: read - open parenthesis - five comma two - close parenthesis)

The 5 in this statement refers to the:

- w) output device number
- x) input device number
- y) format statement reference number
- z) multiplication factor

ANSWER: X -- INPUT DEVICE NUMBER

COMP-91; Multiple Choice: In a FORTRAN program X is set equal to the number 21.6 (read: 21 point 6). If the value of X is printed with an F6.3 field specification, the printed output is:

- w) 21.6 (read: 2 - 1 - point - 6)
- x) 21.60 (read: 2 - 1 - point - 6 - zero)
- y) 21.600 (read: 2 - 1 - point - 6 - zero - zero)
- z) 21.6000 (read: 2 - 1 - point - 6 - zero - zero - zero)

ANSWER: Y -- 21.600

COMP-91; Multiple Choice: In a FORTRAN program Y is set equal to -.127 (read: minus - point - 127). What is the SMALLEST floating-point field specification that could be used to print the value of Y? Is it:

- w) F4.3
- x) F5.3
- y) F6.3
- z) F7.3

ANSWER: X -- F5.3

COMP-91; Multiple Choice: In a FORTRAN program the following line of code is found:

15 FORMAT(3I2) (read: 15 - FORMAT - open parenthesis - 3 - eye - 2 - close parenthesis)

The 3 in this statement indicates the:

- w) input device number
- x) output device number
- y) number of integer variables to be read or written
- z) number of lines to be skipped before the variable is read.

ANSWER: Y -- NUMBER OF VARIABLES TO BE READ OR WRITTEN



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## COMPUTER SCIENCE

COMP-91; Multiple Choice: In a FORTRAN program the following FORMAT statement is associated with a READ statement:

FORMAT(I2/F4.3) (read: one - Format - open parenthesis - I2 - slash - F4.3 - close parenthesis)

The SLASH indicates that:

- w) I2 is divided by F4.3
- x) a new data line is to be read
- y) a blank space is found between the I2 variable and the F4.3 variable
- z) none of the above

ANSWER: X -- A NEW DATA LINE IS TO BE READ

COMP-91; Short Answer: The following arithmetic statements are found in a FORTRAN program:

S = 4. (read: 4 - point)  
R = 5. (read: 5 - point)  
X = 12./S - R (read: 12 - point - slash - S - minus - R)

Determine the numerical value that will be assigned to X.

ANSWER: -2.

COMP-91; Short Answer: The following arithmetic statements are found in a FORTRAN program:

S = 4.  
R = 5.  
T = 2.  
P = (2. \* S - R)\*\*T - 1 (read: P equals - open parenthesis - 2 point star S minus R - close parenthesis - star star T minus 1)

Determine the numerical value that will be assigned to P.

ANSWER: 8.

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COMP-91; Multiple Choice: Which of the following variable names is NOT a valid variable when writing a FORTRAN program:

- w) TEMP (read: T E M P)
- x) X2 (read: X 2)
- y) 2X (read: 2 X)
- z) VOLUME (read: V O L U M E)

ANSWER: C 2X

COMP-91; Short Answer: The following line of code is found in a BASIC computer program:

DIM H\$(4) (read: D - I - M - space - H - \$ - open parenthesis - 4 - close parenthesis)

What is the meaning of the dollar sign in this statement?

ANSWER: THE DOLLAR SIGN INDICATES THAT THE VARIABLE WILL BE A STRING

COMP-91; Short Answer: The following two lines of code are found in a BASIC program:

X = INT(-2.4) (read: x equals I - N - T - open parenthesis - minus 2.4 - close parenthesis)  
Print X

When the program is executed, what value will be printed for X?

ANSWER: -3

COMP-91; Short Answer: The following line is found in a BASIC computer program:

s = TAN(X) (read: S equals T - A - N - open parenthesis - X - close parenthesis)

In what units must X be expressed?

ANSWER: RADIANS

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COMP-91; Multiple Choice: Suppose you encounter the following lines in a BASIC computer program:

```
Print "AB";          (read: print - quotation mark - A - B - quotation mark -  
                     SEMICOLON)  
Print "CD"          (read: print - quotation mark - C - D - quotation mark)
```

Will the output be printed on:

- w) two separate lines
- x) the same line
- y) two separate lines with a blank line between the lines
- z) four separate lines

ANSWER: X -- THE SAME LINE

COMP-91; Short Answer: A BASIC code contains the following lines of code:

```
FOR N = 1 to 4  
S = S + 1  
Next N  
Print N
```

What value or values are printed for N?

ANSWER: 4

COMP-91; Short Answer: When programming in BASIC, ASCII (pron: AS - KEY) code can be used to represent characters numerically. In ASCII the UPPERCASE letter Z represents what number?

ANSWER: 90

COMP-91; Short Answer: When programming in BASIC, ASCII (pron: AS - KEY) code can be used to represent characters numerically. In ASCII the LOWERCASE letter A represents what number?

ANSWER: 97

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COMP-91; Short Answer: The following lines are found in computer code written in BASIC:

```
X = ASC("A") - 64    (read: A - S - C - open parenthesis - quotation mark -  
UPPERCASE A - quotation mark - close parenthesis - minus 64)  
PRINT X
```

What value is printed for X?

ANSWER: 1

COMP-91; Short Answer: When you are writing a FORTRAN program in standard format and you want to continue a statement on the next line you put a character in what column number?

ANSWER: COLUMN 6

COMP-92; Short Answer: How many bits are there in a four-byte long word?

ANSWER: 32 (8 bits/byte times four bytes)

COMP-92; Short Answer: A programming language is named after this woman. What is her name?

ANSWER: (AUGUSTW) ADA LOVELACE

COMP-92; Short Answer: How is the number -5 (base 10) represented in 4-bit two's complement binary arithmetic?

ANSWER: 1011

COMP-92; Short Answer: What is the 2's complement of the 4-bit binary number 1010?

ANSWER: 0110

COMP-92; Short Answer: Express the number 33 (base 8) in base 16.

ANSWER: 1B (Hexidecimal)

COMP-92; Short Answer: What is another name for a base 16 number?

ANSWER: HEXADECIMAL or HEX

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COMP-92; Short Answer: How much is 1A (Hex) plus 2B (Hex)?

ANSWER: 45 (Hex) or 69 (Decimal)

COMP-92; Short Answer: What is the binary result when 0111 binary is subtracted from 1000 binary?

ANSWER: 0001 (Base 2)

COMP-92; Short Answer: What is the decimal range of unsigned integers given an 8-bit word?

ANSWER: (0 to 255) or (0 to (2 to the 8th power)-1)

COMP-92; Short Answer: What is the hexadecimal difference of 3A minus 2B?

ANSWER: F or 0F

COMP-92; Multiple Choice: Which of the following would be used to find syntax errors in a Pascal program?

- w) assembler
- x) compiler
- y) error trap
- z) all of the above

ANSWER: X -- COMPILER

COMP-92; Short Answer: What company created the 80X86 family of microprocessors?

ANSWER: INTEL

COMP-92; Multiple Choice: Ada Augusta, also known as the Countess of Lovelace, is generally considered to be the first programmer of a stored-program computer. Who was her famous father?

- w) John Smith
- x) Lord Byron
- y) John von Neumann
- z) Eli Whitney

ANSWER: X -- LORD BYRON, THE POET

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## COMPUTER SCIENCE

COMP-92; Short Answer: How many memory locations can be accessed with a 5-bit address bus?

ANSWER: (2 to the 5th power) or 32

COMP-92; Short Answer: In one statement, precisely what does the output of the following routine look like?

```
FOR i := 10 DOWNT0 8 DO  
  WRITELN(i * 5);
```

ANSWER: WRITES OUT THE NUMBERS 50, 45 THEN 40, WITH A CARRIAGE RETURN AFT

COMP-92; Short Answer: In Pascal, what is the value of 10 MOD 3?

ANSWER: 1

COMP-92; Short Answer: In Pascal, what is the value of 10 DIV 3?

ANSWER: 3

COMP-92; Short Answer: In Pascal, what is the value of (10 DIV 3) MOD 3?

ANSWER: 0

COMP-92; Short Answer: If A = 1011 (base 2) and B = 1101 (base 2), what is A bitwise or'd with B?

ANSWER: 1111

COMP-92; Multiple Choice: What type of graphics card offers the greatest resolution?

- w) VGA
- x) EGA
- y) SVGA
- z) CGA

ANSWER: Y -- SVGA

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COMP-92; Multiple Choice: Which of the following is a last-in, first-out (also called LIFO) data structure:

- w) tree
- x) stack
- y) queue
- z) list

ANSWER: X -- STACK

COMP-92; Short Answer: Complete the following analogy: LIFO is to stack as FIFO is to:

ANSWER: QUEUE

COMP-92; Multiple Choice: Which of the following operations is used on a stack:

- w) pop
- x) enqueue
- y) insert
- z) delete

ANSWER: W -- POP

COMP-92; Short Answer: Arrange the following THREE processes in their order of operation:  
load, compile, link

ANSWER: COMPILE then LINK then LOAD

COMP-92; Short Answer: A typical hard disk is divided into tracks and what?

ANSWER: SECTORS

COMP-92; Short Answer: What are the TWO wild card indicators in DOS?

ANSWER: ASTERISK AND QUESTION MARK or STAR AND QUESTION MARK

COMP-92; Short Answer: What happens on a DOS machine when you simultaneously hold down the <Ctrl> <Alt> and <Del> (read: control, alternate and delete) keys?

ANSWER: THE SYSTEM WILL REBOOT, RESET OR RESTART.

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Short Answer: The ls (pron: L - S) command in Unix is similar to what command in DOS?

ANSWER: DIR

COMP-92; Short Answer: What value does the following Pascal statement assign to x?  
 $x := \exp(3 * \ln(10))$  (read: X colon equals, E - X - P, open parenthesis, 3 star L - N, open parenthesis, 10, close parenthesis, close parenthesis)

ANSWER: 1000

COMP-92; What is wrong with the following Pascal programming sequence?

```
X := 3;  
REPEAT  
  X := (X MOD X) + 1;  
UNTIL X = 0
```

ANSWER: X IS NEVER 0 or IT IS AN INFINITE LOOP

COMP-92; Multiple Choice: Which of the following does NOT belong?

- w) star
- x) ring
- y) address
- z) bus

ANSWER: Y -- ADDRESS

COMP-92; Short Answer: What batch file, if present in the root directory, is automatically executed by DOS after booting?

ANSWER: AUTOEXEC.BAT

COMP-92; Multiple Choice: The statement:  $C := A + B$ ; is the correct syntax in all but one of the following languages:

- w) Pascal
- x) Cobol
- y) Ada
- z) Modula - 2

ANSWER: X -- COBOL



## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Multiple Choice: Assignment is performed with the equal sign in all but one of the following languages:

- w) Fortran
- x) Basic
- y) Pascal
- z) C

ANSWER: Y -- PASCAL

COMP-92; Short Answer: What is the value of the parity bit produced by an even parity check on an 8-byte word if the number of 1's is 7?

ANSWER: 1

COMP-92; Short Answer: What parity bit should be appended to 1011 to generate even parity?

ANSWER: 1

COMP-92; Short Answer: What is the value of the parity bit produced by an odd parity check if the number of 1's in an 8 bit machine word is 6?

ANSWER: 1

COMP-92; Multiple Choice: An accumulator is a special type of:

- w) bit
- x) register
- y) byte
- z) page

ANSWER: X -- REGISTER

COMP-92; Short Answer: What is the radix of a hexadecimal number?

ANSWER: 16

COMP-92; Short Answer: Every Pascal program begins with what reserved word?

ANSWER: PROGRAM

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Short Answer: What reserved word in Pascal is used to declare variables?

ANSWER: VAR

COMP-92; Short Answer: Given that A,B are reals and I is an integer and that A = 2.3 and B = 5.1 find the value of I in the following Pascal expression:

I := TRUNC(A + X);

ANSWER: 7

COMP-92; Short Answer: In a Pascal program, I is an integer. What is the value of I after the following Pascal statements are executed?

I := 1;

I := ROUND(2.6) \* I;

I := I + 1;

ANSWER: 4

COMP-92; Short Answer: The Pascal statement WRITELN (X:7:3) will provide how many places to the right of the decimal point?

ANSWER: 3

COMP-92; Short Answer: In Pascal, -17 MOD 3 produces what result?

ANSWER: -2

COMP-92; Short Answer: In Pascal, what is the value of x given by the statement:

x := ord('C') - ord('A') (read: X colon equals O-R-D, left parenthesis, quotation mark, C, quotation mark, right parenthesis, minus ...)

ANSWER: x = 2

COMP-92; Short Answer: What are the THREE states in tri-state logic?

ANSWER: 0, 1, and Hi Z (or High Impedance)

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Short Answer: What does the following Pascal statement yield?

$1 + 4 \text{ MOD } 3 + 2$

ANSWER: 4

COMP-92; Short Answer: The following expression is found in a program written in Pascal:

$y := 6 - A * B / C$

What is the SECOND mathematical operation that will be carried out by the computer?

ANSWER: DIVISION or (DIVISION BY Y)

COMP-92; Short Answer: What is the nine's complement of 57.

ANSWER: 42

COMP-92; Short Answer: If one bit can have 2 unique configurations (on or off), and if 2 bits can have 4 unique configurations, how many unique configurations can 4 bits have.

ANSWER: 16

COMP-92; Short Answer: The CAT (read: C - A - T) command in Unix is similar to what command in DOS?

ANSWER: TYPE

COMP-92; Short Answer: The dir command in DOS is similar to what command in Unix?

ANSWER: ls

COMP-92; Short Answer: You are programming in BASIC on your PC. If you want the computer to prompt you ON YOUR DISPLAY SCREEN with the name of the variable you are to assign a value to, what type of statement besides the INPUT statement could you use?

ANSWER: PRINT

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Short Answer: You are programming in BASIC on your PC. What statement is generally used to interrupt program execution during debugging to enable you to examine or change the contents of variables in the immediate mode. Program execution is resumed by executing a CONT (read: C - O - N - T) command.

ANSWER: STOP

COMP-92; Short Answer: You are programming in BASIC on your PC. What statement is used to exchange the values of variables of the same type, or two elements of an array.

ANSWER: SWAP

COMP-92; Short Answer: What standard procedure in Pascal opens a file for reading?

ANSWER: RESET

COMP-92; Short Answer: When programming in Pascal you encounter the following lines of code:

```
V := 5.4;  
WRITELN(V:4:2);    (read: W-R-I-T-E-L-N, open parenthesis, V, colon, 4, colon, 2,  
                   close parenthesis semi-colon)
```

When you run the program, what value will the computer print for V?

ANSWER: 5.40

COMP-92; Short Answer: When programming in BASIC you encounter the following lines of code:

```
X = CINT(-5.6) (read: X equals C-I-N-T open parenthesis - minus 5.6 - close  
parenthesis)  
Print X
```

When you run the program, what value will the computer print for X?

ANSWER: -6

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Short Answer: A Pascal program executes the following statements:

```
A := 1;  
B := 2;  
If A > 1 then A := 10;  
If B > 1 then A := 100;  
A := A + 2 * B
```

What is the final value of A?

ANSWER: 104

COMP-92; Short Answer: A Pascal program executes the following statements:

```
S := 5;  
E := 7;  
for c := S to E do  
  writeln(c + (c - 5) * 2); (read: W-R-I-T-E-L-N, open parenthesis, C plus, open  
  parenthesis, C minus 5, close parenthesis, star 2, close parenthesis, semi-colon)
```

What NUMBERS appear on the screen?

ANSWER: 5, 8, 11 (ALL THREE must be given)

COMP-92; Short Answer: What statement is used in both BASIC and FORTRAN languages to resume computations in the main program or calling routine after executing a subroutine?

ANSWER: RETURN

COMP-92; Short Answer: A Pascal program executes the following statements:

```
J := 1;  
for i := 1 to 3 do  
  J := J * 2 * i;
```

What is the final value of J?

ANSWER: 48

COMP-92; Multiple Choice: What three colors are used to generate all of the colors on a color monitor?

ANSWER: RED, BLUE, GREEN

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Short Answer: The following are a set of lines from a BASIC program.

A = -25

B = SGN(W) (read: b equals S-G-N, open parenthesis, A, close parenthesis)

What is the value of B?

ANSWER: -1 (SGN means sign, returns a -1 if  $A < 0$ )

COMP-92; Short Answer: A Pascal program executes the following statements:

SUM := 0.0;

for i := 1 to N do

SUM := SUM + X[i];

If Y is to be the average of the numbers X(I) in your computer code, write Y in terms of the existing program variables.

ANSWER:  $Y := \text{SUM} / N$ ;

COMP-92; Multiple Choice: Consider the following line of FORTRAN code:

WRITE(6,35) (read: write - open parenthesis - six comma thirty-five - close parenthesis)

The 35 in this statement refers to the:

- w) output device number
- x) input device number
- y) format statement reference number
- z) multiplication factor

ANSWER: Y -- FORMAT STATEMENT REFERENCE NUMBER

COMP-92; Multiple Choice: Consider the following line of FORTRAN code:

WRITE(6,2) (read: write - open parenthesis - six comma two - close parenthesis)

The 6 in this statement refers to the:

- w) output device number
- x) input device number
- y) format statement reference number
- z) multiplication factor

ANSWER: W -- OUTPUT DEVICE NUMBER

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Multiple Choice: Suppose you encounter the following lines in a Pascal computer program:

WRITE('AB'); (read: W-R-I-T-E, open parenthesis, quotation mark, AB, quotation mark, close parenthesis, semi-colon)  
WRITELN('CD'); (read: W-R-I-T-E-L-N, open parenthesis, quotation mark, CD, quotation mark, close parenthesis, semi-colon)

Will the output be printed on:

- w) two separate lines
- x) the same line
- y) two separate lines with a blank line between the lines
- z) four separate lines

ANSWER: X -- THE SAME LINE

COMP-92; Short Answer: When programming in BASIC, ASCII (pron: AS - KEY) code can be used to represent characters numerically. In ASCII the UPPERCASE letter A represents what number?

ANSWER: 65

COMP-92; Short Answer: When reviewing a BASIC program you encounter the following statement:

DEF FND(V,W) = V\*A (read: D - E - F - space - F - N - D - open parenthesis - V , A - close parenthesis - equals V star W)  
Describe what this statement does.

ANSWER: DEFINES A FUNCTION FND OF TWO VARIABLES V AND A

COMP-92; Multiple Choice: In BASIC the OPEN statement is used to:

- w) dimension variables
- x) access files
- y) define functions
- z) open the line to the printer

ANSWER: X -- ACCESS FILES

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Multiple Choice: The hexadecimal equivalent of the decimal number 23 is:

- w) 18
- x) 19
- y) 32
- z) 17

ANSWER: Z -- 17

COMP-92; Multiple Choice: Which of the following is NOT a legitimate data structure?

- w) List
- x) Queue
- y) Register
- z) Graph

ANSWER: Y -- REGISTER

COMP-92; Short Answer: Seven is a prime number. Express seven as a three-bit binary number.

ANSWER: 111

COMP-92; Multiple Choice: The person who conceived and designed a "difference engine" but was not able to build it was:

- w) Herman Hollerith
- x) Charles Babbage
- y) Blaise Pascal
- z) Thomas Edison

ANSWER: X -- CHARLES BABBAGE

COMP-92; Multiple Choice: Which of the following is NOT a sorting algorithm?

- w) Heap
- x) Bubble
- y) Binary
- z) Insertion

ANSWER: Y -- BINARY



## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Multiple Choice: Which of the following was the first digital computer?

- w) Univac
- x) Illiac
- y) VAX II/780
- z) Eniac

ANSWER: W -- UNIVAC

COMP-92; Multiple Choice: Which of the following is NOT a looping construct?

- w) Do...While
- x) If...Then...Else
- y) For...Do
- z) Repeat...Until

ANSWER: X -- IF...THEN...ELSE

COMP-92; Short Answer: Pascal is said to be a scoped language. What type of scoping does Pascal exhibit:

ANSWER: LEXICAL SCOPING or IT IS LEXICALLY-SCOPED or BLOCK TRUCTCOMP-92; Short Answer: A language which exhibits inheritance is what type of language?

ANSWER: OBJECT-ORIENTED LANGUAGE

COMP-92; Multiple Choice: A standard PASCAL program ends with which of the following:

- w) period
- x) semicolon
- y) colon
- z) two slashes

ANSWER: W -- PERIOD

COMP-92; Multiple Choice: Herman Hollerith

- w) was the father of the computer
- x) developed a coding system for punching cards which is still in use today
- y) invented a mechanical calculator that worked like an odometer
- z) built the first electronic computer

ANSWER: X -- DEVELOPED A CODING SYSTEM FOR PUNCHING CARDS WHICH IS TILL

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Multiple Choice: The code that uses only "1"s and "0"s to represent numbers is the:

- w) decimal
- x) binary
- y) alphanumeric
- z) floating point

ANSWER: X -- BINARY

COMP-92; Short Answer: How many bytes is 1 kilobyte?

ANSWER: 1,024 BYTES

COMP-92; Short Answer: If a Manchester encoded transmission system requires a data rate of 100 Mbps, what minimum channel bandwidth is required?

ANSWER: 200 MEGAHERTZ

COMP-92; Multiple Choice: If you needed an Analog to Digital converter that would adequately encode in the range of -5 to +5 volts with a resolution of 500 microvolt, what minimum number of bits resolution would be required:

- w) 13 bits
- x) 14 bits
- y) 15 bits
- z) 16 bits

ANSWER: Y -- 15 BITS

COMP-92; Multiple Choice: When programming in C, ++A is symbolic for what operation?

- w)  $A = A + 1$
- x)  $A = A + B$
- y)  $A = 1$
- z)  $A = 0$

ANSWER: W --  $A = A + 1$

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Short Answer: When programming in C, for what values of "A" will if(W) evaluate to false?

ANSWER: A = 0

COMP-92; Multiple Choice: What type of memory is used to hold application programs while they are being executed and may be cleared when the computer is turned off?

- w) ROM
- x) EPROM
- y) RAM
- z) DISK

ANSWER: Y -- RAM

COMP-92; Multiple Choice: What command would you type to return to DOS from BASIC?

- w) exit
- x) quit
- y) end
- z) system

ANSWER: Z -- SYSTEM

COMP-92; Multiple Choice: Which of these is NOT a COBOL division?

- w) Data Division
- x) Procedure Division
- y) File Division
- z) Environment Division

ANSWER: Y -- FILE DIVISION

COMP-92; Multiple Choice: In which language is this a valid statement: A + B++

- w) FORTRAN
- x) COBOL
- y) BASIC
- z) C

ANSWER: Z -- C

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Multiple Choice: Which of the following is NOT an operating system?

- w) XENIX
- x) SQL
- y) PC DOS
- z) CP/M

ANSWER: X -- SQL

COMP-92; Multiple Choice: The process of loading an operating system is called:

- w) booting
- x) formatting
- y) compiling
- z) debugging

ANSWER: W -- BOOTING

COMP-92; Multiple Choice: The process of preparing a floppy diskette for use is called:

- w) assembling
- x) translating
- y) parsing
- z) formatting

ANSWER: Z -- FORMATTING

COMP-92; Multiple Choice: A program that converts a high-level language source file into a machine-language file is called a:

- w) translator
- x) assembler
- y) compiler
- z) linker

ANSWER: Y -- COMPILER

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Multiple Choice: The binary number 1011 is expressed in hexadecimal notation as:

- w) 11
- x) 13
- y) A
- z) B

ANSWER: Z -- B

COMP-92; Multiple Choice: When using COBOL, a serial search of a table begins with the first entry in the table, while a binary search of a table begins with what entry? Is it the:

- w) first
- x) middle
- y) last
- z) none of the above

ANSWER: X -- MIDDLE

COMP-92; Multiple Choice: When using COBOL, the instruction used to transfer control from the main module to some other part of the program is what instruction? Is it:

- w) transfer
- x) perform
- y) execute
- z) exchange

ANSWER: X -- PERFORM

COMP-92; Multiple Choice: What is the most common method used to erase EPROM chips before re-programming them?

- w) magnetic field
- x) ultraviolet light
- y) program all null values in memory
- z) high-pitched sound

ANSWER: X -- ULTRAVIOLET LIGHT

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Multiple Choice: In what section of a COBOL program is the SELECT statement found?

- w) report section
- x) file section
- y) working-storage section
- z) input-output section

ANSWER: Z -- INPUT-OUTPUT SECTION

COMP-92; Multiple Choice: When programming in Pascal, you use which of the following to define a block of code?

- w) start and stop
- x) begin and finish
- y) begin and end
- z) initiate and end

ANSWER: Y -- BEGIN AND END

COMP-92; Multiple Choice: Which of the following is NOT a recursive language?

- w) Pascal
- x) COBOL
- y) C
- z) C++

ANSWER: X -- COBOL

COMP-92; Multiple Choice: Rules that govern how computers communicate are called:

- w) system standards
- x) topology
- y) protocols
- z) baud rate

ANSWER: Y -- PROTOCOLS

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Multiple Choice: Using Pascal, a repeat/until loop is executed. What is the minimum number of times the loop will be executed?

- w) at least twice
- x) can be zero times
- y) always executed at least once
- z) always twice

ANSWER: Y -- ALWAYS EXECUTED AT LEAST ONCE

COMP-92; Multiple Choice: When programming in COBOL, which of its four divisions is used to describe the specific computer that will be used by the program?

- w) identification division
- x) environment division
- y) data division
- z) procedure division

ANSWER: X -- ENVIRONMENT DIVISION

COMP-92; Multiple Choice: Which database modeling technique is well known for its use of high level data manipulation languages, such as SQL, QUEL and QBE?

- w) relational model
- x) network model
- y) hierarchical model
- z) entity-relationship model

ANSWER: W -- RELATIONAL MODEL

COMP-92; Multiple Choice: Programs written in the C programming language consist of one or more functions. Which function is always the first to be executed?

- w) open
- x) exit
- y) menu
- z) main

ANSWER: Z -- MAIN

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Multiple Choice: Where does Area A start in COBOL?

- w) Column 12
- x) Column 8
- y) Column 7
- z) Column 6

ANSWER: X -- COLUMN 8

COMP-92; Multiple Choice: Where does Area B start in COBOL?

- w) Column 12
- x) Column 11
- y) Column 10
- z) Column 8

ANSWER: W -- COLUMN 12

COMP-92; Multiple Choice: In COBOL, what is the data level 01 used for?

- w) records
- x) files
- y) fields
- z) condition names

ANSWER: W -- RECORDS

COMP-92; Short Answer: EXE (read: E - X - E), COM (read: C - O - M) and BAT (read: B - A - T) files are all executable under MS-DOS. In which order will DOS look for these files?

ANSWER: COM first; EXE second; BAT last

COMP-92; Multiple Choice: One K of COMPUTER MEMORY is equivalent to:

- w) 1,000 bytes
- x) 2 to the eighth power bytes
- y) 2 to the tenth power bytes
- z) 640 thousand bytes

ANSWER: Y -- 2 TO THE TENTH POWER BYTES



## ***Science Bowl***

## COMPUTER SCIENCE

COMP-92; Multiple Choice: What DOS command gives you the total disk space, amount of available disk space, and the amount of free memory?

- w) MEM (read: M - E - M)
- x) CHKDSK (read: C - H - K - D - S - K)
- y) SPACE (read: S - P - A - C - E)
- z) MEMORY (read: M - E - M - O - R - Y)

ANSWER: X -- CHKDSK

COMP-92; Multiple Choice: A logical variable contains what type of data?

- w) numeric
- x) true/false
- y) alphanumeric
- z) memory address

ANSWER: X -- TRUE/FALSE

COMP-93; Short Answer: This seventeenth century scientist, mathematician and philosopher is credited with having built the first adding machine; a programming language is also named after him. What is his name?

ANSWER: (BLAISE) PASCAL

COMP-93; Multiple Choice: During the nineteenth century, an English mathematician designed a forerunner of the modern stored-program computer which he named an "analytical engine." Who was this Englishman?

- w) Charles Babbage
- x) Lord Byron
- y) James Clerk Maxwell
- z) Lord Kelvin

ANSWER: W -- CHARLES BABBAGE

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: Which of the following will NOT decrease the processing time of a computer?

- w) increasing the processor speed
- x) increasing the size of the data bus
- y) increasing the resolution of the monitor
- z) decreasing the access time of a hard disk

ANSWER: Y -- INCREASING THE RESOLUTION OF THE MONITOR

COMP-93; Short Answer: What does the acronym G-I-G-O mean?

ANSWER: GARBAGE IN, GARBAGE OUT

COMP-93; Short Answer: What three letter word is commonly used to refer to an error in a computer program?

ANSWER: BUG

COMP-93; Short Answer: What is the name of the marker that indicates where the next typed character will appear on the screen?

ANSWER: CURSOR

COMP-93; Short Answer: What company is Bill Gates president of?

ANSWER: MICROSOFT

COMP-93; Multiple Choice: You are laying out the logic of your computer program before you begin writing it. The graphical representation that you create is called a

- w) file
- x) simulation
- y) listing
- z) flowchart

ANSWER: Z -- FLOWCHART

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: Which of the following does NOT belong?

- w) printer
- x) plotter
- y) monitor
- z) keyboard

ANSWER: Z -- KEYBOARD (Keyboard is input, others are output devices)

COMP-93; Short Answer: Computers are playing a major role in today's communication revolution. What is the technological field involved in the control and intercommunication of information handling machines, the nervous systems of animals and man in order to improve communication?

ANSWER: CYBERNETICS

COMP-93; Short Answer: What reserved word in Pascal is used to define constants?

ANSWER: CONST

COMP-93; Multiple Choice: Which of the following is NOT characteristic of the second generation of operating systems of the early 1960's:

- w) real time computing
- x) multiprogramming
- y) multiprocessing
- z) networking

ANSWER: Z -- NETWORKING

COMP-93; Short Answer: What does the acronym C-A-M refer to?

ANSWER: COMPUTER AIDED (OR ASSISTED) MANUFACTURING

COMP-93; Short Answer: What does the acronym C-A-D refer to?

ANSWER: COMPUTER AIDED (OR ASSISTED) DESIGN (DRAFTING OR DRAWING)

COMP-93; Short Answer: At what company or research organization was the first transistor developed?

ANSWER: BELL LABORATORIES

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: Which of the following is NOT characteristic of the first generation of computers?

- w) vacuum tubes
- x) integrated circuits
- y) magnetic drums
- z) punched cards

ANSWER: X -- INTEGRATED CIRCUITS

COMP-93; Short Answer: One language commonly used in computer programming is BASIC. What does the acronym BASIC stand for?

ANSWER: BEGINNER'S ALL-PURPOSE SYMBOLIC INSTRUCTION CODE

COMP-93; Multiple Choice: Which of the following is NOT one of the internal components of a CPU?

- w) control - sequencer
- x) M-D-R
- y) M-A-R
- z) floppy disk

ANSWER: Z -- FLOPPY DISK

COMP-93; Short Answer: What is the name of the base 16 number system?

ANSWER: HEXADECIMAL

COMP-93; Short Answer: Third generation computers replaced transistors with what?

ANSWER: INTEGRATED CIRCUITS or IC's or CHIPS

COMP-93; Short Answer: Mathematical operations commonly encountered in programming are: addition, multiplication, and exponentiation. When programming in BASIC, which of these operations takes precedence?

ANSWER: EXPONENTIATION

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: The smallest unit of information is

- w) a byte (Pronounced: bite)
- x) a bit
- y) a nibble
- z) a block

ANSWER: X -- A BIT

COMP-93; Multiple Choice: Which of the following is not usually considered a high level programming language?

- w) BASIC
- x) PL/1 (Pronounced: "P L 1")
- y) PASCAL (Pronounced: pas kal')
- z) machine language

ANSWER: Z -- MACHINE LANGUAGE

COMP-93; Multiple Choice: A program that enables you to perform calculations involving rows and columns of numbers is called a

- w) spreadsheet program
- x) word processor
- y) graphics package
- z) window

ANSWER: W -- SPREADSHEET PROGRAM

COMP-93; Multiple Choice: Which computer pioneer was also a Rear Admiral of the U.S. Navy?

- w) Steve Jobs
- x) John Backus
- y) John von Neumann
- z) Grace Hopper

ANSWER: Z -- GRACE HOPPER

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Short Answer: You are programming in BASIC on your PC. You want to see all of your program statements on the CRT. What command do you type?

(Pronounced: P C and C R T)

ANSWER: LIST or L (accept "LIST RETURN" or "L RETURN")

COMP-93; Short Answer: You are programming in BASIC on your PC. What statement do you use in your program if you want the program to stop so that you can assign a value to a variable.

ANSWER: INPUT (also accept GET or INKEY)

COMP-93; Short Answer: What standard procedure in Pascal opens a file for writing?

ANSWER: REWRITE

COMP-93; Short Answer: What command in BASIC is used to delete a file from your disk?

ANSWER: KILL

COMP-93; Short Answer: What 4-letter command is used in BASIC to resume execution of a program at the point it was interrupted by a STOP or END statement?

ANSWER: CONT

COMP-93; Multiple Choice: Which programming language is most commonly used for complex scientific programming?

- w) BASIC
- x) Cobol
- y) Fortran
- z) R-P-G

ANSWER: Y -- FORTRAN

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: The ability of a computer to learn from experience by storing information and applying it to new situations is referred to as

- w) artificial intelligence
- x) automated data processing
- y) asynchronous transmission
- z) encryption

ANSWER: W -- ARTIFICIAL INTELLIGENCE

COMP-93; Multiple Choice: When you boot a computer you are

- w) submitting a batch job
- x) debugging a program
- y) loading the operating system
- z) kicking it in frustration

ANSWER: Y -- LOADING THE OPERATING SYSTEM

COMP-93; Multiple Choice: Where do you find a write protect notch?

- w) on a computer chip
- x) on a punched card
- y) in a read only memory
- z) on a floppy disk

ANSWER: Z -- ON A FLOPPY DISK

COMP-93; Multiple Choice: Some programs allow the computer's video display to be divided into separate areas in order to look at more than one item or portions of an item simultaneously. These are called?

- w) disks
- x) windows
- y) fonts
- z) directories

ANSWER: X -- WINDOWS

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: A prescribed set of well-defined instructions for solving mathematical problems is called

- w) a compiler
- x) a code
- y) a description
- z) an algorithm

ANSWER: Z -- ALGORITHM

COMP-93; Multiple Choice: In order to write on a floppy disk with your IBM PC, (Pronounced I B M P Y) you must first

- w) digitize it
- x) format it
- y) compile it
- z) hardware it

ANSWER: X -- FORMAT IT

COMP-93; Multiple Choice: An electrical pathway within a computer is called:

- w) buffer
- x) sector
- y) bus
- z) track

ANSWER: Y -- BUS

COMP-93; Multiple Choice: When programming in BASIC, which of the following mathematical operations comes last in the order of precedence?

- w) addition
- x) division
- y) exponentiation

ANSWER: W -- ADDITION



## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: There are two symbols used for exponentiation in BASIC programs. One is a caret and the other is:

- w) an asterisk
- x) two asterisks
- y) an ampersand
- z) a backslash

ANSWER: X -- TWO ASTERISKS

COMP-93; Short Answer: The following are a set of lines from a BASIC program.

X = -4

X = ABS (X) (read: X equals A-B-S open parenthesis X close parenthesis)

What is the value of X?

ANSWER: 4 (ABS means absolute value)

COMP-93; Short Answer: You just won the lottery and you want to purchase the most scientifically advanced personal computer system that your money can buy. From each of the following pairs, select the device which would give your system the greatest power or output capabilities.

- w) a hard disk or a floppy disk
- x) EGA or CGA graphics
- y) dot-matrix or laser printer

ANSWER: HARD DISK, EGA, LASER PRINTER

COMP-93; Multiple Choice: What natural element is the primary ingredient in computer chips?

- w) silicon
- x) carbon
- y) iron
- z) uranium

ANSWER: W -- SILICON

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: The first generation of computers used vacuum tubes to perform digital switching. What electronic device replaced the vacuum tube and greatly improved the dependability of computing machines?

- w) Integrated Circuit
- x) Diode
- y) Transistor
- z) Relay

ANSWER: Y -- TRANSISTOR

COMP-93; Multiple Choice: What computer programming language was developed in the 1970's by AT&T for the purpose of creating the UNIX operating system?

- w) FORTRAN
- x) COBOL
- y) C
- z) ADA

ANSWER: Y -- "C"

COMP-93; Multiple Choice: Which of the following is NOT a programming language?

- w) C
- x) Pascal
- y) Babbage
- z) Lisp

ANSWER: Y -- BABBAGE

COMP-93; Multiple Choice: The letters UPC stand for:

- w) United Parcel Corporation
- x) Universal Product Code
- y) Universal Price Code
- z) Universal Personal Computer

ANSWER: X -- UNIVERSAL PRODUCT CODE

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: In computer science what does the acronym JCL stand for?

- w) Justified Computer Language
- x) Justified Complete Language
- y) Job Computerized Language
- z) Job Control Language

ANSWER: Z -- JOB CONTROL LANGUAGE

COMP-93; Multiple Choice: A Field is a related group of

- w) Records
- x) Files
- y) Characters
- z) Cables

ANSWER: Y -- CHARACTERS

COMP-93; Multiple Choice: In DOS, what command allows a ASCII file to be viewed?

- w) TYPE
- x) SHOW
- y) DISPLAY
- z) VIEW

ANSWER: W -- TYPE

COMP-93; Short Answer: LOTUS 1-2-3, QUATTRO PRO and EXCEL are examples of what type of software?

ANSWER: SPREADSHEETS

COMP-93; Multiple Choice: The type of data storage that is considered to be non-volatile is?

- w) R-O-M
- x) R-A-M
- y) TAPE
- z) DISK

ANSWER: W -- R-O-M

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: Data is stored on diskettes in what form?

- w) ink
- x) laser bubbles
- y) magnetism
- z) circuits

ANSWER: Y -- MAGNETISM

COMP-93; Multiple Choice: The smallest visual element on a video monitor is called what?

- w) Character
- x) Pixel
- y) Byte
- z) Kwerk

ANSWER: X -- PIXEL

COMP-93; Multiple Choice: In the language BASIC, which statement allows comments, annotations or notes?

- w) GOSUB
- x) DATA
- y) REM
- z) READ

ANSWER: Y -- REM

COMP-93; Multiple Choice: The first general-purpose commercially available computer system was called?

- w) HAL
- x) UNIVAC I
- y) ENIAC
- z) MARK I

ANSWER: X -- UNIVAC I

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: Electronic wire connector cables can be of two types, Serial and ?

- w) Duplexed
- x) Parallel
- y) Linking
- z) Expanded

ANSWER: X -- PARALLEL

COMP-93; Multiple Choice: One of the things that separates a "Terminal" from a "PC" is that the terminal does not have a what?

- w) Keyboard
- x) Monitor
- y) Power cord
- z) CPU

ANSWER: Z -- CPU

COMP-93; Multiple Choice: The "First Generation" of computers used?

- w) Gears
- x) Vacuum Tubes
- y) Transistors
- z) No Electricity, Mechanical

ANSWER: X -- VACUUM TUBES

COMP-93; Short Answer: In communications an extra bit is added to each byte to aid in checking data for accuracy. This bit is known as what?

ANSWER: PARITY

COMP-93; Short Answer: What does the acronym GIGO mean?

ANSWER: GARBAGE IN, GARBAGE OUT

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: Substances in the read heads of computer disk drives use a property known as magnetoresistance to access a floppy disk. A new class of magnetoresistant substances has been made from

- w) uranium and lead
- x) aluminum and iron
- y) copper and barium
- z) silver and cobalt

ANSWER: Z -- SILVER AND COBALT

COMP-93; Multiple Choice: Which computer pioneer was also a Rear Admiral of the U.S. Navy?

- w) Steve Jobs
- x) John Backus
- y) John von Neumann
- z) Grace Hopper

ANSWER: Z -- GRACE HOPPER

COMP-93; Short Answer: This seventeenth century scientist, mathematician and philosopher is credited with having built the first adding machine; a programming language is also named after him. What is his name?

ANSWER: (BLAISE) PASCAL

COMP-93; Multiple Choice: How many bits are sent when using the synchronous transmission mode if your character being transmitted is 8 bits long?

- w) 3
- x) 8
- y) 10
- z) 12

ANSWER: X -- 8

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: OS/2 is

- w) single-user, single tasking
- x) multi-user, single tasking
- y) multi-user, multitasking
- z) single-user, multitasking

ANSWER: Z -- SINGLE-USER, MULTITASKING

COMP-93; Multiple Choice: In BASIC programming "text" characters are contained in what kind of variable?

- w) Hyper
- x) Fixed
- y) String
- z) Nodal

ANSWER: Y -- STRING

COMP-93; Multiple Choice: "Parity bits" are used for which of the following purposes?

- w) Encryption of data.
- x) To transmit faster.
- y) To detect errors.
- z) To identify the user.

ANSWER: Y -- TO DETECT ERRORS

COMP-93; Multiple Choice: An electrical pathway within a computer is called:

- w) circuit
- x) line
- y) bus
- z) track

ANSWER: Y -- BUS

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: Which of the following transmission directions listed is not a legitimate channel?

- w) full duplex
- x) double-duplex
- y) half-duplex
- z) simplex

ANSWER: X -- DOUBLE-DUPLEX

COMP-93; Short Answer: What programming language was named after the first programmer?

ANSWER: ADA (AFTER ADA LOVELACE)

COMP-93; Multiple Choice: How many color dots make up one color pixel on a screen?

- w) 256
- x) 16
- y) 3
- z) 1

ANSWER: Y -- 3

COMP-93; Short Answer: What is the value fourteen in Base 10 equal to in Base 16?

ANSWER: E

COMP-93; Multiple Choice: Which of the following is not a PASCAL data type?

- w) float
- x) integer
- y) char
- z) real

ANSWER: W -- FLOAT

COMP-93; Short Answer: How many columns did the Hollerith Punch card have?

ANSWER: 80



## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: Which inherent intrinsic property is common to both C++ and C?

- w) polymorphism
- x) inheritance
- y) classes
- z) structures

ANSWER: Z -- STRUCTURES

COMP-93; Short Answer: The term used to indicate, in bits per second, the transmission speed of a modem is?

ANSWER: BAUD

COMP-93; Multiple Choice: An eight bit byte is capable of representing how many different characters?

- w) 64
- x) 128
- y) 256
- z) 512

ANSWER: Y -- 256

COMP-93; Multiple Choice: The language that is the lowest level is:

- w) assembly
- x) high-level
- y) machine
- z) application generator

ANSWER: Y -- MACHINE

COMP-93; Multiple Choice: The person credited with designing the Harvard Mark I Computer is:

- w) Aiken
- x) Atanasoff
- y) Eckert
- z) Mauchly

ANSWER: W -- AIKEN

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: The analytical engine plan was a product of whose design?

- w) Babbage
- x) Jacquard
- y) Leibnitz
- z) Pascal

ANSWER: W -- BABBAGE

COMP-93; Multiple Choice: Which type of network is best suited for businesses which must carefully control and coordinate the operations of distributed branch outlets?

- w) hierarchical
- x) local area
- y) ring
- z) star

ANSWER: Z -- STAR

COMP-93; Multiple Choice: The language that has become the most widely used microcomputer high level language is:

- w) PASCAL
- x) COBOL
- y) BASIC
- z) Small talk

ANSWER: Y -- BASIC

COMP-93; Short Answer: What is the decimal number equivalent of the hexadecimal number "AB"?

ANSWER: 171

COMP-93; Multiple Choice: Modular programming relates to the use of which of the following:

- w) Data files
- x) Subroutines
- y) Conditional IF statements
- z) Do loops

ANSWER: X -- SUBROUTINES

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Short Answer: What does RISC stand for?

ANSWER: REDUCED INSTRUCTION SET COMPUTER

COMP-93; Multiple Choice: What computer programming language was developed in the 1970's for the purpose of creating the UNIX operating system?

- w) FORTRAN
- x) COBOL
- y) ADA
- z) C

ANSWER: Z -- "C"

COMP-93; Multiple Choice: What is the two's complement of 1010?

- w) 0101
- x) 0111
- y) 0110
- z) 1100

ANSWER: Y -- 0110

COMP-93; Short Answer: What does PROM mean?

ANSWER: PROGRAMMABLE READ-ONLY MEMORY

COMP-93; Short Answer: How many characters are there in the official standard ASCII character set? (pronounced ask-ee)

ANSWER: 128

COMP-93; Short Answer: Who invented the computer architecture that put program memory and data memory in the same memory unit?

ANSWER: VON NEUMANN (Pronounced noy-man)

## ***Science Bowl***

## **COMPUTER SCIENCE**

COMP-93; Short Answer: What high-ranking government official has initiated legislation to build an electronic superhighway spanning the nation just as his father spearheaded the drive to build the vehicular highway system?

ANSWER: VICE-PRESIDENT AL GORE

COMP-93; Short Answer: Many scientists use random number generators to estimate the frequency of certain events. This technique is identified with the name of what famous gambling center?

ANSWER: MONTE CARLO

COMP-93; Multiple Choice: A virtual memory system (VMS) means:

- w) data are copied from slower R-O-M to faster R-A-M
- x) the hard drive is accessed as if it were R-A-M
- y) R-A-M is accessed as if it were a hard drive
- z) there is no upper limit on the amount of R-A-M addressed

ANSWER: X -- THE HARD DRIVE IS ACCESSED AS IF IT WERE R-A-M

COMP-93; Multiple Choice: In the context of microcomputer memory, what number does "K" represent in bytes?

- w) 1024
- x) 1000
- y) 1023
- z) 1048

ANSWER: W -- 1024

COMP-93; Multiple Choice: In a microcomputer, what benefit does a coprocessor provide?

- w) Supports both color and monochrome monitors
- x) Allows multi-user operations
- y) Increases the speed of floating point mathematical computations
- z) Handles network communication protocols

ANSWER: Y -- INCREASES THE SPEED OF FLOATING POINT MATHEMATICAL COMPUTATIONS

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: Which of these is a standard interface for serial data transmission?

- w) ASCII
- x) RS232C
- y) LU6.2
- z) Centronics

ANSWER: X -- RS232C

COMP-93; Multiple Choice: What is the process that uses hardware and software to "imitate" a computer system in order to run programs that would otherwise be incompatible?

- w) Mapping
- x) Cloning
- y) Migration
- z) Emulation

ANSWER: Z -- EMULATION

COMP-93; Multiple Choice: What is the term for a temporary storage area that compensates for differences in data rate and data flow between devices?

- w) Buffer
- x) Bus
- y) Channel
- z) Modem

ANSWER: W -- BUFFER

COMP-93; Short Answer: Consider the following algorithm: x is initialized to 2; x is then replaced by its double four times in sequence; x is then decremented by 2 three times in sequence. What is the final value of x.

ANSWER: 26.

COMP-93; Multiple Choice: Which of the following types of computer software is least likely to translate the commands of a computer program written in a language like BASIC into executable computer machine instructions?

- w) interpreter
- x) word processor
- y) compiler
- z) debugger

ANSWER: X -- WORD PROCESSOR

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: Numbers ranging from -16,000 to +16,000 might be stored in a computer readable file as 16-bit integers, or in an ASCII (pronounced ask-ee) representation, which could be viewed with a text-editor or word processor. For a large file, how many times bigger would the ASCII file be than the binary version?

- w) no bigger
- x) twice as big
- y) four times as big
- z) eight times as big

ANSWER: Y -- FOUR TIMES AS BIG

COMP-93; Multiple Choice: What is the decimal equivalent of the binary number 10111?

- w) 21
- x) 23
- y) 39
- z) 42

ANSWER: X -- 23

COMP-93; Multiple Choice: What term is used to describe a function that calls itself?

- w) Iterative
- x) Assimilative
- y) Recursive
- z) Cooperative

ANSWER: Y -- RECURSIVE

COMP-93; Multiple Choice: "SQL" is an acronym for what computer language?

- w) Standard Quality Language
- x) Structured Query Language
- y) Serial Quotient Language
- z) Sequential Query Language

ANSWER: X -- STRUCTURED QUERY LANGUAGE

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: What is the name of the computer technology that is expected to provide the most powerful supercomputers within the next 10 years?

- w) Fiber optics
- x) Laser doping
- y) Parallel computing
- z) Very large integrated circuits

ANSWER: Y -- PARALLEL COMPUTING

COMP-93; Multiple Choice: A record is related to a file, as a statement is related to a

- w) procedure
- x) file
- y) program
- z) data

ANSWER: Y -- PROGRAM

COMP-93; Multiple Choice: The life-cycle of most large software development projects, such as those for NASA and DOD, goes through several well-defined phases sometimes referred to as the water-fall method. A simple version of the water-fall method consists of 4 phases. Which of the following would be the second phase?

- w) software design
- x) coding
- y) requirements analysis
- z) testing

ANSWER: W -- SOFTWARE DESIGN

COMP-93; Multiple Choice: In the late 1970's, Pascal inventor Niklaus Wirth designed the language specifically for:

- w) high speed computers
- x) teaching programming to students
- y) helping market IBM personal computers
- z) use on any type of operating system

ANSWER: X -- TEACHING PROGRAMMING TO STUDENTS

## ***Science Bowl***

## COMPUTER SCIENCE

COMP-93; Multiple Choice: 'Push' and 'Pop' are appropriate operations for which data structure?

- w) a linked list
- x) a queue
- y) a stack
- z) a two-dimensional array

ANSWER: Y -- A STACK

COMP-93; Multiple Choice: On IBM-PC based microcomputer systems, the 'boot section' stores:

- w) information on file sizes
- x) a copy of the operating system
- y) code needed to load the operating system
- z) all of the above

ANSWER: Y -- CODE NEEDED TO LOAD THE OPERATING SYSTEM

COMP-93; Multiple Choice: The terms FIFO and LIFO would most likely arise during a discussion of:

- w) storage media
- x) binary trees
- y) compiler design
- z) queues

ANSWER: Z -- QUEUES